Science Advisory Council

Meeting Summary – Second Meeting
December 8, 2008
100 Cambridge St, Boston

Present for the meeting:

Science Advisory Council

Priscilla Brooks, Conservation Law Foundation
Wendell Brown, School of Marine Science and Technology, UMass Dartmouth
Todd Callaghan, MA CZM
John Duff, Earth and Ocean Sciences, UMass Boston
Anamarija Frankic, Environmental, Earth and Ocean Sciences, UMass Boston
Kathryn Ford, Massachusetts Division of Marine Fisheries
Carlton Hunt, Battelle
Scott Krauss, New England Aquarium
John F. Looney Jr., Environmental, Earth and Ocean Sciences, UMass Boston
Frank Muller-Karger, School of Marine Science and Technology, UMass Dartmouth
Bill Schwab, US Geological Survey, Woods Hole
David Terkla, Department of Economics, UMass Boston

Meeting Minutes

John Weber, Ocean Resources Manager, opened the meeting at 1:00 PM by thanking Council members for their participation. He explained that the overall purpose of the meeting was to review the reports of the Working Groups as well as the Baseline Assessment, all of which will be incorporated into the draft management plan. One of the main purposes of this review was to identify other data that may be directly applicable and useful to the development of the ocean management plan.

John also gave a brief overview of the agenda for the upcoming OAC meeting on December 11, wherein the draft report of the 18 Public Listening Sessions as well as the preliminary draft report of the Stakeholder meetings held until mid-November will be presented. The OAC will also be asked to discuss and comment on the format proposed for characterizing goals and objectives for the plan. A draft of the goals and objectives is intended to be made available to the SAC before the next meeting in January 2009.

John further explained that according to the Oceans Act of 2008, the plan was to be reviewed every 5 years. Given the available data and data gaps, as well as the tight schedule, the ocean management plan will have a first version that is responsive to the Oceans Act that simultaneously prepares for priority issues that will need to be addressed in "version 2" of the plan. In this regard, the EEA planning team will need the assistance of the SAC in:

- identifying the key questions/issues that will need to be addressed based on the knowledge we have today and the outcomes we desire
- characterizing the steps needed to develop "version 2" of the plan

Work Group Presentations (note that drafts of the work group reports are available on the EEA web site at www.mass.gov/eea).

1. Renewable Energy Work Group

Kenneth Kimmel, EEA, presented an overview of the renewable energy working group report. Their work characterized the status of knowledge of renewable energy potential in state waters but did not indicate any particular locations nor did they conduct any compatibility analysis, since this was outside the scope of their work. He briefly explained that various studies have indicated that wind is the most promising resource for renewable energy in Massachusetts due to wind characteristics and water depth. Since virtually all of Massachusetts coastline offers suitable wind resources, the working group recommended as a next step thinking about siting wind energy farms in areas that minimize conflicts with other activities, uses or environmental characteristics. The working group also developed a suitability ranking scheme for near-term wind facility development.

Because various studies indicate a limited potential for wave energy development in Massachusetts, the working group did not recommend a major focus on site selection in this version of the ocean plan but to conduct research and prototype exercises as technology improves. Studies on the potential for tidal energy also indicate that the state has marginal resources using currently available technology, although more research studies need to be conducted. Because Muskeget Channel, Vineyard Sound and waters southeast of Nantucket have been indicated as the most promising locations, and also considering that there are three potential projects pending in this general area, the working group recommended investigating this potential further as new technology is developed.

During this presentation, the Council made the following comments (responses to comments as appropriate provided in italics):

- There are various research efforts underway to develop renewable energy technology in order to harness more resources. Therefore, no potential for renewable energy should be excluded prematurely in Massachusetts waters as the viability of a type of technology which seems unsuitable now may become possible in future. *Answer: EPRI's report considered Vineyard Sound, Muskeget Channel and SE Nantucket Sound as the most appropriate for tidal energy. In general, given current technology, the west coast of the United States is considered more suitable for wave energy. However, plan revisions will address advances in technology in the coming years.*
- Did the renewable energy work group address how siting in Federal waters will be handled? *Answer: Not in their work to date, but, since the majority of potential sites are in federal waters, that is an issue of importance to be addressed.*
- It is important to consider trade-offs when making decisions on site suitability and technology used, both in the near-term and more importantly in the long-term. *Answer: Since the production potential is considered to be the same along all Massachusetts coast, renewable energy propositions will be located in areas where impacts to other activities or vulnerable ecosystems are minimized.*

- Were people interested in proposing renewable energy projects consulted at any time regarding wave and tidal energy projects? *Answer: Yes, and they maintain that Massachusetts waters do not offer very good resources; they find the Pacific Northwest offers much better resources.*
- Scientific data spanning an appropriate number of years is needed to make informed decisions, e.g. wind data to include 100-yr catastrophic storm. It is also important that changes in environmental conditions be taken into account. *Answer: The work group looked at the AWS models that are based on a long data history that includes extreme wind events.*
- Other technologies, such as ocean thermal energy conversion (OTEC), should be considered, as well as linking with existing plants such as the Canal plant in Sandwich and taking advantage of temperature gradients, output flows, etc. *Answer: Consultants have considered the possibility of the Cape Cod Canal for tidal energy but according to the Army Corps of Engineers there is not enough depth to permit such infrastructure without interfering with navigation.*
- Some of the Working Group reports seem to include proprietary information, which raised questions of referencing such information in public documents as well as allowing a reader to review cited material. *Answer: According to the Working Groups, most of the data is in public domain. If not, please let us know.*

2. Fisheries Working Group

Micah Dean, Division of Marine Fisheries, gave an overview the fisheries work group report. The work group focused on species caught by commercial and recreational fisheries. He elaborated on the characteristics and limitations of the data used, which came from catch and dealer reports, Federal Vessel Trip Reports, and state surveys including the Resource Assessment Bottom Trawl Survey as well as the Marine Recreational Information Program. Analyses were conducted to generate digitized maps showing the distribution of the 22 commercially or recreationally most important finfish and shellfish species, and the areas of importance to commercial fisheries.

During this presentation, the Council made the following comments (responses to comments as appropriate provided in italics):

- Massachusetts has fisheries management jurisdiction over Nantucket Sound, including federal waters, yet this was not included. *Answer: This area is outside the ocean management plan area and so outside the remit of the Working Group.*
- When data is combined, several caveats emerge, but there is a tendency for important information (such as these caveats) used to generate the final maps to be "lost" or overlooked. It would be insightful for the SAC to have the possibility of looking at the individual sets of data and/or information used to produce this map. *Answer: Individual maps look very similar and show the same trends. Much of the individual data and explanations of caveats are included in the report.*
- Recommend submitting this work, or portions thereof, for publication in a peer-reviewed journal; very impressive.
- Shellfish species should also be mapped separately. Does Figure 5 represent an aggregation of all species over the whole area? *Answer: Yes. Figure 5 represents 30 yrs of data.*

- It would be interesting to ask fishermen themselves "where they catch what". This may enable the generation of individual maps for the more important species that may be more helpful in decision-making. *Answer: this work is being conducted in separate meetings with fishermen to identify what/where/when/using what gear they fish.*
- How will the various life stages, faster fish, etc that are missed by the trawl be captured? *Answer: This in part forms the basis for recommendations for additional data collection efforts in the future.*
- It is important to start looking into the possibility of linking specific areas/habitats with specific species or life stages. Has this been addressed? *Answer: That level of detail has not yet been addressed.*
- It is vital to ensure that the final map is accurate and informative enough to be overlaid with other use maps such as renewable energy and to be comfortable with decisions that will be made. *Answer: More data are needed to obtain more details behind the general information for a specific activity or use. As management measures and decision rules are developed, we need to ensure that the available science supports the decisions.*
- The concept of "biodiversity" is missing since this report only considers 22 species, thereby excluding species which may be vital to understand ecosystem linkages.
- The report does not address hotspots or include closed fisheries areas, "no trawl' areas, etc. It would be interesting to understand why those provisions have been made, e.g. Cod Conservation Zones.
- Why are fisheries habitats treated separately than other habitats? *Answer: The "fisheries" and "habitat" findings will eventually be interlinked to try to understand the interplay between the two areas. Working group members welcome advice and direction from the SAC regarding metrics that need to be considered and understand changes in biodiversity e.g. species richness, hotspots.*

3. Habitats Working Group

Bruce Carlisle, CZM, gave an overview of the work conducted by the habitat working group to identify, characterize and prioritize habitat areas in the ocean plan area. Their goals were to:

- ensure that appropriate existing data are identified and incorporated
- ensure that data are used appropriately to characterize the topic
- identify and help prioritize data needed for long-term planning and management

Bruce discussed data availability, data gaps and the possibility of using surrogates. Using various techniques, the group attempted to characterize habitats in classes of low, medium, high and critical importance based on a combination of parameters. Limitations were encountered in locating, compiling and integrating data from various sources, which resulted in data gaps as well as data in different formats and scales. The report makes various recommendations, including the need to conduct further analyses with existing data, conduct gap analysis, partner with other entities to generate and interpret data, develop a monitoring network and keep an *ad hoc* working group to carry out further work as needed especially for the linkages that will be required in developing version 2 of the plan.

During this presentation, the Council made the following comments (responses to comments as appropriate provided in italics):

- It is important to conduct work to incorporate lower trophic levels in subsequent ecosystem analyses. UMass Dartmouth offered assistance in obtaining monthly data on primary productivity in the water column.
- Data on harmful algal blooms available at WHOI and UMass Dartmouth should be incorporated.
- The working group asked the SAC for advice about integrating years of data at different scales, accuracy and precision levels. It was suggested by the SAC that data integration did not always have to result in the generation of a single number. The appropriate tools need to be used to generate meaningful results from such data that will help in decision-making.
- The Working Group should identify how data will be used in the development of the ocean management plan so that the Science Advisory Council can provide comments and advice accordingly.
- How did the Group integrate "important" within the categories of "special, sensitive, and unique"? Have these terms—used in the Oceans Act—been defined? *Answer: A brief discussion about the definition of "sensitive, unique, vulnerable" and the classification of habitats and species within these categories followed, resulting in the working group asking the SAC for guidance in this matter.*
- A narrative of how data from different scales are incorporated within the same resolution should be included.
- It is important to understand that any model selected for use in habitat classification or modeling ecosystem processes has its strengths and weaknesses. It is important to have a clear understanding of model output so that the right model is selected.
- Will the plan be a road map on how to move forward? It is important to have a system of incorporating new knowledge and information during the 5 years between the first plan and the next revision. *Answer: Yes. The plan shall offer a framework to incorporate new science and data.*
- It is vital that the best possible plan is developed now, since in January 1, 2010 new activities will be proposed according to this plan.

Baseline Assessment

Todd Callaghan presented a brief overview of the draft of the baseline assessment. He asked the SAC to comment and welcomed any information on additional data and information.

During the ensuing discussion, the following comments were made. Answers as appropriate are provided in italics.

- Will the work group reports be incorporated within this assessment? *Answer: Relevant sections of the work group reports will be incorporated into the baseline assessment where appropriate, including important facts and conclusions reached.*
- The baseline assessment should include information on critically endangered populations, biodiversity hotspots and high-use areas, if available. *Answer: the availability of such information will become clearer once the final habitat report is incorporated.*
- In developing the baseline assessment, information on work carried out by neighboring states and which may affect Massachusetts waters needs to be included.
- During a discussion of whether the assessment should incorporate changing conditions and trends, emphasis was placed on the notion that the assessment should include the

status of various species, especially commercial and recreational fish. In short, the Baseline Assessment should be more than an inventory of facts.

- It was suggested that an element of social science be incorporated where appropriate to include quantity or quality of uses. It may be useful to include a cultural component (willingness-to-pay, recreational value, etc.) to the Human Uses section.
- The section on Protected Areas should be elaborated upon by adding information related to fisheries closure areas.
- Consider including land-based operations such as desalination plants, given their very limited, if any, direct effect on the plan area.
- A few edits/additions were suggested for the document, including the renaming of Chapter 5 to Historical and Cultural Resources to include some elements of ethnography, and the inclusion of a subsection on "changes in wind patterns" under Climate Change.

In conclusion, John Weber asked Council members to send any other comments regarding the work group reports and the baseline assessment to him by December 23, so that they may be incorporated in the final documents. Before adjourning, it was agreed that the next Council meeting will be scheduled for the second week of January 2009. During the next meeting, the Council will look at the reports from the working groups on transportation and navigation, cultural and recreational resources, and sediment. The meeting adjourned at 4:00 PM.